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Deliveries in Short-Stay Hospitals: United States, 1980

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This report concerns the use of hospitals by women with deliveries during 1980. Characteristics of the women who delivered (age, race, and marital status) and of the hospitals in which they delivered (region, bed size, and ownership) are presented by type of delivery (normal or complicated). Data on the types of obstetrical complications experienced by these women and on the procedures they underwent are also presented. Hospital use measurements shown include frequencies, percents, and average lengths of stay.

The statistics presented in this report are based on data collected through the National Hospital Discharge Survey. This is a sample survey that has been conducted by the National Center for Health Statistics since 1965. In 1980, data were abstracted from the face sheets of medical records of approximately 224,000 patients discharged from 420 short-stay non-Federal hospitals. A brief description of the sample design, data collection procedures, and estimation process, and definitions of terms presented in this report can be found in the section entitled "technical notes." A detailed discussion of these items, as well as the survey form used to collect the data, have been published.[1,2]

Diagnostic and procedure data are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification.*[3] Up to seven diagnoses and four procedures are coded for each discharge; however, the only diagnoses considered in this report were obstetrical diagnoses (codes 640–676) and sterilization (code V25.2). Obstetrical diagnoses are those diagnoses that refer to conditions arising from or affecting the management of pregnancy, childbirth, and the puerperium (the period following delivery). Other diagnoses were not used because they were felt to be repetitious. For example, a woman with anemia would have two codes for this diagnosis—one showing it as an obstetrical complication and one indicating the specific type of anemia.

In this report, obstetrical diagnoses are categorized into two broad types—normal deliveries and complicated deliveries. A normal delivery refers to a spontaneous delivery without mention of abnormality, complication, or the use of instruments or fetal manipulation. All other deliveries, including multiple births, are referred to as complicated. The rationale for including pregnancies with multiple fetuses as complicated is based on the observation that such pregnancies are associated with increased morbidity and mortality.[4]

Summary

During 1980 3.8 million women with deliveries were discharged from short-stay non-Federal hospitals in the United States. These women made up a sizable portion—9.9 percent—of all the discharges (excluding newborn infants) during that year. Women with deliveries remained hospitalized an average of 3.8 days and used 14.2 million days of inpatient hospital care. This was only 5.2 percent of the total days spent in hospitals by all patients discharged during the year.

Most of the women who had a delivery were in their twenties, were white, and were married. The largest percent of deliveries occurred in the South Region, followed by the North Central, Northeast, and West Regions. The percent of women with deliveries was lowest in the smallest hospitals and highest in the largest hospitals. Most of the women with deliveries were discharged from nonprofit hospitals.

About half of the women had a normal delivery and about half had some sort of complication. Women more likely to have a complicated delivery were older, were races other than white, had an unknown marital status,

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and had delivered in the South Region. These women also stayed in the hospital longer, on the average, than did women with a normal delivery.

The most frequently occurring complications were forceps or vacuum extraction without mention of indication and obstetrical trauma. Episiotomy was the most common procedure. Other frequently performed procedures were low forceps or vacuum extraction with or without episiotomy, cesarean section, repair of obstetric laceration, and bilateral destruction or occlusion of fallopian tubes.

Findings

Patient and hospital characteristics

During 1980, 3,762,000 women with deliveries were discharged from short-stay non-Federal hospitals in the United States (table 1). Most of these women (over 60 percent) were in their twenties; 32.5 percent were 20–24 years of age and 31.6 percent were 25–29 years of age. Almost 16 percent were in each of the age groups 10–19 years and 30–34 years, while only 4.5 percent were 35–54 years of age. This age distribution was the same for each type of delivery (normal or complicated).

The majority (70.0 percent) of women with deliveries were white, and 17.6 percent were black and other races. These data should be viewed with some caution, however, because of the large percent of women (12.4 percent) for whom race could not be identified on the face sheet of the medical record. As expected, most of the women with deliveries during 1980 were married (77.0 percent). However, a sizable percent—16.5 percent—had never been married. Over 3 percent of the women were separated, divorced, or widowed, and the marital status of 3.0 percent was unknown.

Table 2 presents data on women with deliveries by type of delivery for the hospital characteristics region, bed size, and ownership. The largest percent of deliveries (34.7 percent) was in the South Region, followed by 27.3 percent in the North Central Region, 19.1 percent in the Northeast Region, and 18.9 percent in the West Region. This distribution reflects that of civilian noninstitutionalized women in the child-bearing ages (10–54 years of age for this report). Unpublished data from the Bureau of the Census show that during 1980, 33.3 percent of these women lived in the South, 25.8 percent in the North Central Region, 21.7 percent in the Northeast Region, and 19.2 percent in the West. The pattern of deliveries was the same for each type of delivery (normal or complicated); that is, the largest percent was in the South and the second largest was in the North Central Region. (For normal deliveries the difference between the South Region and the North Central Region was not statistically significant.) The percent of deliveries was approximately the same in each of the remaining two regions.

The percent of women with deliveries generally increased as the bed size of the hospital increased. The smallest hospitals (6–99 beds) had 14.9 percent of the deliveries while the largest hospitals (500 beds or more) had 26.3 percent of the deliveries. When hospital ownership is examined, it can be seen that the vast majority (72.9 percent) of mothers were discharged from nonprofit hospitals, 23.8 percent were discharged from State and local government hospitals, and 3.2

Table 1. Number and percent distribution of women with deliveries discharged from short-stay non-Federal hospitals by age, race, and marital status, according to type of delivery: United States, 1980

Age, race, and marital status	All deliveries	Type of delivery		All deliveries	Type of delivery	
		Normal	Complicated		Normal	Complicated
	Number in thousands			Percent distribution		
Total[1]	3,762	1,841	1,921	100.0	100.0	100.0
Age						
10–19 years	583	291	292	15.5	15.8	15.2
20–24 years	1,222	594	628	32.5	32.3	32.7
25–29 years	1,190	591	599	31.6	32.1	31.2
30–34 years	597	291	305	15.9	15.8	15.9
35–54 years	171	74	97	4.5	4.0	5.1
Race						
White	2,633	1,277	1,356	70.0	69.3	70.6
Black and all other	662	312	351	17.6	16.9	18.2
Marital status						
Married	2,898	1,434	1,464	77.0	77.9	76.2
Never married	620	299	321	16.5	16.3	16.7
Separated, divorced, or widowed	131	64	68	3.5	3.5	3.5
Unknown	112	44	69	3.0	2.4	3.6

[1] Includes data for which race was not stated.

Table 2. Number and percent distribution of women with deliveries discharged from short-stay non-Federal hospitals by region, bed size, and hospital ownership, according to type of delivery: United States, 1980

Region, bed size, and ownership	All deliveries	Type of delivery		All deliveries	Type of delivery	
		Normal	Complicated		Normal	Complicated
	Number in thousands			Percent distribution		
Total	3,762	1,841	1,921	100.0	100.0	100.0
Region						
Northeast	717	357	360	19.1	19.4	18.8
North Central	1,028	528	500	27.3	28.7	26.0
South	1,307	590	718	34.7	32.0	37.4
West	709	367	343	18.9	20.0	17.8
Bed size						
6–99 beds	562	329	233	14.9	17.9	12.1
100–199 beds	679	315	363	18.0	17.1	18.9
200–299 beds	653	339	314	17.4	18.4	16.4
300–499 beds	878	416	462	23.3	22.6	24.1
500 beds or more	990	442	548	26.3	24.0	28.5
Ownership						
Nonprofit	2,744	1,315	1,429	72.9	71.4	74.4
State and local government	897	467	430	23.8	25.4	22.4
Proprietary	122	60	62	3.2	3.2	3.2

percent from proprietary hospitals. This reflects the distribution of all discharges by ownership of hospital; over 70 percent of all discharges during 1980 were from nonprofit hospitals and about 20 percent were from State and local government hospitals.

Table 3 gives the percent distribution of women with deliveries by type of delivery for the patient characteristics age, race, and marital status and the hospital characteristics region, bed size, and ownership. Of the 3,762,000 women who delivered, 48.9 had a normal delivery and 51.1 percent had some complication or other condition associated with the delivery that required special care or management. This distribution is similar for most of the characteristics examined (that is, about half of the deliveries were normal and about half were complicated). However, a significantly larger percent of complicated births occurred to women 35–54 years of age (57.0 percent), women for whom marital status was unknown (61.2 percent), and women who were discharged from hospitals in the South Region (54.9 percent). Some variations also occurred by bed size of hospital. Only in the smallest hospitals was there a significantly larger proportion of normal deliveries than complicated deliveries; in hospitals of every other bed size, except those with 200–299 beds, the proportion of complicated deliveries was larger than the proportion of normal deliveries. Hospitals with 200–299 beds had about the same proportion of normal and complicated deliveries.

The average length of stay for all women with deliveries during 1980 was 3.8 days (table 4). Women with normal deliveries stayed an average of 3.0 days while those with complications were hospitalized, on the average, 4.5 days.

Average lengths of stay were longer for women with complicated deliveries than for women with normal deliveries for every age, race, marital status, region, bed size, and ownership type examined. These differences were statistically significant for every characteristic except marital status unknown.

Obstetrical diagnoses associated with deliveries

Table 5 shows the number of women with deliveries by type of delivery and number of diagnoses. Most of the women (77.2 percent) had only one diagnosis regardless of the type of delivery. A much larger percent of women with normal deliveries had only one diagnosis compared with the percent of women with complicated deliveries (92.5 percent compared with 62.4 percent). This is expected because women with normal deliveries could only have a maximum of two diagnoses: normal delivery and sterilization. Women with complicated deliveries, on the other hand, could have more than one complication as well as sterilization and, therefore, could have several diagnoses.

The average length of stay was longer for women with more than one diagnosis than for women with only one diagnosis; the difference, however, was not statistically significant for women with normal deliveries. Women with complicated deliveries had a longer average length of stay than women with normal deliveries regardless of the number of diagnoses.

Of the 3.8 million women who had a delivery in 1980, 8.3 percent were sterilized during the same hospitalization; specifically, 7.5 percent of the women with normal deliveries and 9.1 percent of the women with complicated deliveries were sterilized. As shown in

Table 3. Percent distribution of women with deliveries discharged from short-stay non-Federal hospitals by type of delivery, according to selected characteristics: United States, 1980

Selected characteristics	All deliveries	Type of delivery	
		Normal	Complicated
Total[1]	100.0	48.9	51.1
Age			
10–19 years	100.0	49.9	50.1
20–24 years	100.0	48.6	51.4
25–29 years	100.0	49.7	50.3
30–34 years	100.0	48.9	51.1
35 years and over	100.0	43.0	57.0
Race			
White	100.0	48.5	51.5
Black and all other	100.0	47.1	52.9
Marital status			
Married	100.0	49.5	50.5
Never married	100.0	48.3	51.7
Separated, divorced, or widowed	100.0	48.5	51.5
Marital status unknown	100.0	38.8	61.2
Region			
Northeast	100.0	49.8	50.2
North Central	100.0	51.3	48.7
South	100.0	45.1	54.9
West	100.0	51.7	48.3
Bed size			
6–99 beds	100.0	58.6	41.4
100–199 beds	100.0	46.5	53.5
200–299 beds	100.0	51.9	48.1
300–499 beds	100.0	47.4	52.6
500 beds or more	100.0	44.6	55.4
Ownership			
Nonprofit	100.0	47.9	52.1
State and local government	100.0	52.1	47.9
Proprietary	100.0	49.0	51.0

[1] Includes data for which race was not stated.

Table 4. Average length of stay for women with deliveries discharged from short-stay non-Federal hospitals by selected characteristics: United States, 1980

Selected characteristics	All deliveries	Type of delivery	
		Normal	Complicated
Total[1]	3.8	3.0	4.5
Age			
10–19 years	3.7	2.9	4.5
20–24 years	3.6	2.9	4.3
25–29 years	3.7	3.0	4.5
30–34 years	4.0	3.2	4.7
35 years and over	4.3	3.5	5.2
Race			
White	3.7	3.0	4.4
Black and all other	3.9	3.0	4.7
Marital status			
Married	3.7	3.0	4.4
Never married	3.9	3.0	4.8
Separated, divorced, or widowed	3.7	2.8	4.5
Marital status unknown	4.5	3.5	5.1
Region			
Northeast	4.5	3.6	5.4
North Central	4.2	3.4	5.1
South	3.5	2.8	4.1
West	2.9	2.2	3.6
Bed size			
6–99 beds	3.0	2.6	3.7
100–199 beds	3.5	3.0	3.9
200–299 beds	3.6	3.0	4.2
300–499 beds	4.0	3.2	4.8
500 beds or more	4.3	3.2	5.1
Ownership			
Nonprofit	3.9	3.1	4.6
State and local government	3.5	2.8	4.3
Proprietary	3.2	2.5	3.9

[1] Includes data for which race was not stated.

table 6, a larger percent of the women who were sterilized had a complicated delivery; the type of delivery did not differ significantly among the women who were not sterilized. Although the average length of stay was longer for women who were sterilized than for those who were not, regardless of the type of delivery, the differences are not statistically significant. Women with a complicated delivery had a longer length of stay, on the average, than women with a normal delivery for both sterilized and nonsterilized women.

The number and percent distribution of first-listed and of all-listed obstetrical diagnoses and the average length of stay by first-listed diagnosis for women with complicated deliveries are shown in table 7. The two most common diagnoses were forceps or vacuum extractor delivery without mention of indication (that is, the reason for the use of these instruments was not stated on the face sheet of the medical record) and obstetrical trauma. About 18 percent of the women with a complicated delivery had a forceps or vacuum extractor delivery without mention of indication. The use of forceps or a vacuum extractor are two alternative methods to assist delivery.[5]

In the field of obstetrics two distinct viewpoints have emerged concerning the use of forceps—those holding one viewpoint advocate their use on a routine basis to assist in guiding the child through the birth canal, whereas the other group feels that the use of forceps is justified only when the delivery cannot proceed spontaneously.[4] Undoubtedly the practice of many obstetricians is between these two extremes. Since the reason for the use of forceps or a vacuum extractor was not stated for these 350,000 deliveries, one can only speculate as to how many of the deliveries could have proceeded spontaneously—or as to how many complications were averted because of their use.

Table 5. Number, percent distribution, and average length of stay for women with deliveries discharged from short-stay non-Federal hospitals by type of delivery, according to number of diagnoses: United States, 1980

Number of diagnoses	All deliveries	Type of delivery	
		Normal	Complicated
	Number in thousands		
All women with deliveries	3,762	1,841	1,921
Women with one diagnosis	2,903	1,703	1,199
Women with more than one diagnosis	860	138	722
	Percent distribution		
All women with deliveries	100.0	100.0	100.0
Women with one diagnosis	77.2	92.5	62.4
Women with more than one diagnosis	22.8	7.5	37.6
	Average length of stay in days		
All women with deliveries	3.8	3.0	4.5
Women with one diagnosis	3.4	2.9	4.0
Women with more than one diagnosis	5.1	3.8	5.3

Table 6. Number, percent distribution, and average length of stay for women with deliveries discharged from short-stay non-Federal hospitals, by type of delivery, according to sterilization status: United States, 1980

Sterilization status	All deliveries	Type of delivery	
		Normal	Complicated
	Number in thousands		
All women with deliveries	3,762	1,841	1,921
Sterilized	312	138	174
Not sterilized	3,450	1,703	1,747
	Percent distribution		
All women with deliveries	100.0	48.9	51.1
Sterilized	100.0	44.2	55.8
Not sterilized	100.0	49.4	50.6
	Average length of stay in days		
All women with deliveries	3.8	3.0	4.5
Sterilized	4.6	3.8	5.2
Not sterilized	3.7	2.9	4.4

The average length of stay for these 350,000 women was 3.3 days. This length is not significantly different from the average length of stay of 3.0 days for normal deliveries. However, these women did stay a significantly shorter time, on the average, than did all women with complicated deliveries.

Obstetrical trauma accounted for 15.4 percent of the first-listed and 14.8 percent of the all-listed obstetrical diagnoses for women with complications during

Table 7. Number, percent distribution, and average length of stay by first-listed obstetrical diagnosis, and number and percent distribution by all-listed diagnoses for women discharged with complicated deliveries: United States, 1980

[Discharges from short-stay non-Federal hospitals. Diagnostic groupings and code numbers from the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Diagnosis and ICD-9-CM code		Women with complicated deliveries				
		First listed diagnosis			All-listed diagnoses	
		Number in thousands	Percent distribution	Average length of stay in days	Number in thousands	Percent distribution
All obstetrical diagnoses	640–648, 651–676	1,921	100.0	4.5	2,647	100.0
Forceps or vacuum extractor delivery without mention of indication	669.5	350	18.2	3.3	350	13.2
Obstetrical trauma	664–665	297	15.4	3.1	393	14.8
Trauma to perineum and vulva during delivery	664	241	12.6	3.0	308	11.6
First-degree perineal laceration	664.0	60	3.1	2.9	71	2.7
Second-degree perineal laceration	664.1	50	2.6	2.8	62	2.3
Third-degree perineal laceration	664.2	51	2.7	3.3	68	2.6
Fourth-degree perineal laceration	664.3	46	2.4	3.4	60	2.3
Other and unspecified trauma to perineum and vulva	664.4–664.9	34	1.8	2.7	47	1.8
Laceration of cervix and high vaginal laceration	665.3–665.4	39	2.0	3.1	59	2.2
Other obstetrical trauma	665.0–665.2, 665.5–665.9	17	0.9	3.7	26	1.0
Uterine scar from previous surgery	654.2	169	8.8	5.9	192	7.2
Early onset of delivery	644.2	135	7.0	4.8	154	5.8
Fetopelvic disproportion	653.4	113	5.9	5.9	153	5.8
Hypertension complicating pregnancy, childbirth, and the puerperium	642	105	5.5	6.1	151	5.7
Breech presentation	652.1–652.2, 669.6	88	4.6	4.9	120	4.5
Rupture of membranes	658.1–658.3	87	4.5	4.4	130	4.9
Cesarean delivery, without mention of indication	669.7	50	2.6	6.1	50	1.9
Postpartum hemorrhage	666	36	1.8	3.2	54	2.1
Umbilical cord complications	663	35	1.8	3.6	67	2.5
Anemia	648.2	32	1.7	3.9	71	2.7
Fetal distress	656.3	32	1.7	4.8	64	2.4
Antepartum hemorrhage, abruptio placentae, and placenta previa	641	28	1.5	6.4	53	2.0
Uterine inertia	661.0–661.2	24	1.3	4.5	50	1.9
Infections of genitourinary tract in pregnancy	646.6	20	1.1	4.7	56	2.1
Other obstetrical complications	Residual	320	16.7	4.9	539	20.4

1980. Most of the trauma involved lacerations or other injury to the perineum or vulva. No significant differences were found among the various degrees of perineal lacerations (first, second, third, or fourth degree) that occurred.

Significantly longer average lengths of stay were found for the first-listed diagnoses of uterine scar from previous surgery; fetopelvic disproportion; hypertension complicating pregnancy, childbirth, and the puerperium; and cesarean delivery without mention of indication. All of these diagnoses are associated with or indications for cesarean delivery, which, of itself, necessitates a longer hospital stay.[4,6,7] A longer average length of stay is also observed for the diagnosis antepartum hemorrhage, abruptio placenta, and placenta previa; however, the difference is not statistically significant due to the relatively small number of these diagnoses.

When comparing the number of first-listed diagnoses with the number of all-listed diagnoses for specific diagnostic groups, some differences can be seen. For example, the number of all-listed diagnoses of infections of the genitourinary tract is almost three times higher than the number of first-listed diagnoses of this type. The numbers of all-listed diagnoses for the following conditions are twice as high as the numbers of first-listed diagnoses: anemia; uterine inertia; fetal distress; umbilical cord complications; and antepartum hemorrhage, abruptio placenta, and placenta previa. This is not surprising because many of these complications are either the result of or a contributing factor to other complications. For example, abruptio placenta may be caused by, among other things, an abnormality or tumor of the uterus, a short umbilical cord, and hypertension.[4] Uterine inertia causes prolonged labor and could also result in hemorrhage.[8] Anemia may be hereditary or, if not, has many causes such as infection, hemorrhage, and iron deficiency.[4]

Procedures associated with deliveries

The number and percent distribution of all-listed procedures performed on women with deliveries is shown in table 8. About half of the procedures performed were episiotomies, making this by far the most common obstetrical procedure. The majority of these episiotomies (76.7 percent) were performed without forceps or other instruments to assist delivery. Of the women with normal deliveries, 1,146,000, or 62.2 percent, had an episiotomy. Many physicians routinely perform episiotomies because it is felt that this procedure eliminates the risk of perineal lacerations and it spares the baby's head from beating against a possible perineal obstruction. The straight, clean incision of an episiotomy is preferable to a ragged laceration, the procedure shortens labor, and the possibility of a third-degree laceration is reduced. In addition, it is felt that the baby's head hitting against an obstruction for any period of time could result in brain damage.[4]

Table 8. Number and percent distribution of all-listed procedures for women discharged with deliveries by type of procedure: United States, 1980

[Discharges from short-stay non-Federal hospitals. Procedure groupings and code numbers from the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure and ICD-9-CM code		All-listed procedures	
		Number in thousands	Percent distribution
All procedures		3,972	100.0
All obstetrical procedures[1]	72–75	3,526	88.8
Low forceps operation with and without episiotomy	72.0–72.1	482	12.1
Extraction procedures to assist delivery	72.2–72.5, 72.7–72.9, 73.2	127	3.2
Midforceps operation with and without episiotomy	72.2	38	1.0
Forceps rotation of fetal head	72.4	31	0.8
Breech extraction	72.5	21	0.5
Vacuum extraction	72.7	22	0.6
Other extraction procedures to assist delivery	Residual	16	0.4
Episiotomy	72.1, 72.21, 72.31, 72.71, 73.6	2,012	50.7
Episiotomy only	73.6	1,543	38.8
Low forceps operation with episiotomy	72.1	428	10.8
Other instrumental delivery with episiotomy	72.21, 72.31, 72.71	41	1.0
Artificial rupture of membranes	73.0	120	3.0
Other procedures to assist delivery	72.6, 73.1	117	2.9
Cesarean section	74.0–74.2, 74.4–74.9	619	15.6
Diagnostic amniocentesis and fetal monitoring	75.1, 75.34	119	3.0
Manual removal of retained placenta	75.4	29	0.7
Repair of current obstetric laceration	75.5–75.6	350	8.8
Manual exploration of uterine cavity, postpartum	75.7	17	0.4
Other obstetrical procedures	Residual	*2	*0.1
Bilateral destruction or occlusion of fallopian tubes	66.2–66.3	313	7.9
Dilation and curettage of uterus	69.02–69.09	17	0.4
Other procedures	Residual	117	2.9
Incidental appendectomy	47.1	20	0.5
Insertion of indwelling urinary catheter	57.94	10	0.3

[1] Numbers will not add to total because episiotomies are listed in more than one category.

Others question the routine performance of episiotomies: they feel that if the delivery was allowed to proceed normally and in an unrushed manner, many episiotomies would be unnecessary. Moreover, since the site of the incision can often be bothersome and even painful during healing, they feel that episiotomies should be done only when necessary.[9]

Of all the procedures performed on women with deliveries, 12.1 percent were low forceps or vacuum extraction with or without episiotomy. As stated previously, some physicians feel that this type of procedure should be done routinely to forestall possible complications, while others feel it should be done only to assist a delivery that cannot proceed spontaneously.[4]

The number of cesarean sections performed in 1980 was 619,000, or 15.6 percent of the total number of procedures. This surgery was performed on 16.5 percent of all mothers and 32.2 percent of the women with complicated deliveries.

The incidence of cesarean sections has been increasing since the late sixties, sparking much debate and discussion about the necessity for this procedure. During 1965 only about 5 percent, or 174,000, of the women with deliveries had a cesarean section. In 1980, 619,000 women, about 16 percent of all women who delivered, underwent a cesarean section. Many explanations have been given for this trend—for example, the increased use of fetal monitoring (and the subsequent identification of potential complications that would otherwise be unanticipated); the policy of "once a cesarean always a cesarean" (that is, once a woman has this procedure, all subsequent deliveries should be by cesarean section); and the feeling that a cesarean section is preferable to a vaginal delivery for difficult deliveries, as a response to indications of fetal distress, or for breech presentations.[4,6,7,10]

Repair of current obstetric laceration was one of the more frequently performed obstetrical procedures; the 350,000 performed made up 8.8 percent of all procedures. Other obstetrical procedures of interest that were performed relatively frequently were artificial rupture of membranes (120,000) and diagnostic amniocentesis and fetal monitoring (119,000). Each of these categories made up.3 percent of the total procedures performed.

There were 446,000 nonobstetrical procedures performed on women who delivered in 1980. These nonobstetrical procedures made up 11.2 percent of all the procedures performed. Most of these (313,000) were bilateral destruction or occlusion of fallopian tubes (sterilization).

References

[1]National Center for Health Statistics, W. R. Simmons: Development of the design of the NCHS Hospital Discharge Survey. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 2-No. 39. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1970.

[2]National Center for Health Statistics, B. J. Haupt: Utilization of short-stay hospitals, annual summary for the United States, 1980. *Vital and Health Statistics.* Series 13-No. 64. DHHS Pub. No. (PHS) 82–1725. Public Health Service. Washington. U.S. Government Printing Office, Mar. 1982.

[3]U.S. Public Health Service and Health Care Financing Administration: *International Classification of Diseases, 9th Revision, Clinical Modification.* DHHS Pub. No. (PHS) 80–1260. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1980.

[4]J. A. Pritchard and P. C. MacDonald: *William• Obstetrics,* 15th ed. New York. Appleton-Century-Crofts, 1976.

[5]*Instructions for the Silastic Obstetrical Vacuum Cup in the Second Stage of Labor.* Midland, Mich. Dow Corning Corp., 1980.

[6]Office of the Assistant Secretary for Planning and Evaluation/Health, H. I. Marieskind: *An Evaluation of Caesarean Section in the United States.* U.S. Department of Health, Education, and Welfare. Washington. June 1979.

[7]P. J. Placek and S. M. Taffel: Trend in Complications Associated With Cesarean and Non-Cesarean Deliveries, United States, 1970 and 1978. Paper presented to the Annual Meeting of the American Public Health Association. Los Angeles, Nov. 1981.

[8]E. C. Hughes: *Obstetric-Gynecologic Terminology.* Philadelphia. F. A. Davis Co., 1972.

[9]Boston Women's Health Book Collective: *Our Bodies, Ourselves: A Book by and for Women.* New York. Simon and Schuster, 1973, pp. 185–192.

[10]P. J. Placek and S. M. Taffel: Trends in cesarean section rates for the United States, 1970–78. *Pub. Health Rep.* 95(6):540–548, Nov.-Dec. 1980.

[11]National Center for Health Statistics, M. G. Sirken: Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1965. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 13-No. 2. Public Health Service. Washington. U.S. Government Printing Office, Aug. 1967.

[12]National Center for Health Statistics, M. J. Witkin: Utilization of short-stay hospitals by characteristics of discharged patients, United States, 1965. *Vital and Health Statistics.* PHS Pub. No. 1000-Series 13-No. 3. Public Health Service. Washington. U.S. Government Printing Office, Dec. 1967.

Technical notes

Source of data

The National Hospital Discharge Survey (NHDS) encompasses patients discharged from short-stay hospitals, exclusive of military and Veterans Administration hospitals, located in the 50 States and the District of Columbia. Only hospitals with six beds or more and an average length of stay of less than 30 days for all patients are included in the survey. Discharges of newborn infants are excluded from this report.

The universe of the survey consisted of 6,965 short-stay hospitals contained in the 1963 Master Facility Inventory of Hospitals and Institutions. New hospitals were sampled for inclusion in the survey in 1972, 1975, and 1977. In all, 544 hospitals were sampled in 1980. Of these hospitals, 72 refused to participate, and 52 were out of scope. The 420 participating hospitals provided approximately 224,000 abstracts of medical records.

Sample design

All hospitals with 1,000 beds or more in the universe of short-stay hospitals were selected with certainty in the sample. All hospitals with fewer than 1,000 beds were stratified, the primary strata being 24 size-by-region classes. Within each of these 24 primary strata, the allocation of the hospitals was made through a controlled selection technique so that hospitals in the sample would be properly distributed with regard to type of ownership and geographic division. Sample hospitals were drawn with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals.

Sample discharges were selected within the hospitals using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number, a number assigned when the patient was admitted to the hospital. The within-hospital sampling ratio for selecting sample discharges varied inversely with the probability of selection of the hospital.

Data collection and estimation

The sample selection and the transcription of information from the hospital records for abstract forms were performed by the hospital staff or by representatives of the National Center for Health Statistics or by both. The data were abstracted from the face sheets of the medical records. All discharge diagnoses and procedures were listed on the abstract in the order of the principal one, or the first-listed one if the principal one was not identified, followed by the order in which all other diagnoses or procedures were entered on the face sheet of the medical record.

Statistics produced by the NHDS are derived by a complex estimating procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimating procedure used to produce essentially unbiased national estimates in the NHDS has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals. These components of estimation are described in appendix I of two earlier publications.[11,12]

Sampling errors and rounding of numbers

The standard error is a measure of the sampling variability that occurs by chance because only a sample, rather than an entire universe, is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Table I shows relative standard errors for discharges, first-listed diagnosis, and all-listed disgnoses. Relative standard errors for all-listed procedures are as follows:

Size of estimate	*Relative standard error*
1,000	35.5
2,500	26.7
5,000	21.9
10,000	18.3
25,000	14.6
50,000	12.6
100,000	10.9
500,000	8.2
1,000,000	7.4
4,000,000	6.1

The standard errors for average lengths of stay are shown in table II.

Estimates have been rounded to the nearest thousand. For this reason detailed figures within tables do not always add to the totals. Percents and average lengths of stay were calculated from original, unrounded figures and will not necessarily agree precisely with percents or average lengths of stay calculated from rounded data.

NOTE: A list of references follows the text.

Table I. Approximate relative standard errors of estimated number of discharges, first-listed diagnosis, and all-listed diagnoses, by selected patient and hospital characteristics

Size of estimate	Ownership of hospital		Bed size	All other characteristics
	Proprietary or State and local government	Nonprofit	less than 100	
	Relative standard error			
10,000	35.7	19.9	20.7	16.3
50,000	27.9	15.2	13.1	10.2
100,000	25.5	13.7	11.0	8.5
300,000	22.4	11.9	8.6	6.6
500,000	21.2	11.2	7.8	5.9
1,000,000	19.9	10.4	6.8	5.1
4,000,000	17.7	9.2	5.4	4.0

Table II. Approximate standard errors of average lengths of stay

Number of discharges or first-listed diagnosis	Average length of stay in days		
	2	6	10
	Standard error in days		
10,000	0.7	1.2	1.7
50,000	0.3	0.7	1.0
100,000	0.3	0.6	0.9
500,000	0.2	0.5	0.8
1,000,000	0.2	0.5	0.8
5,000,000	0.2	0.5	0.8

Tests of significance

In this report, the determination of statistical inference is based on the two-tailed Bonferroni test for multiple comparisons. Terms relating to differences such as "higher" and "less" indicate that the differences are statistically significant. Terms such as "similar" or "no difference" mean that no statistically significant difference exists between the estimates being compared. A lack of comment on the difference between any two estimates does not mean that the difference was tested and found to be not significant.

Definition of terms

Patient.—A person who is formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. In this report the number of patients refers to the number of discharges during the year including any multiple discharges of the same individual from one or more short-stay hospitals.

Obstetrical diagnosis.—A diagnosis relating to conditions arising from or affecting the management of pregnancy, childbirth, and the puerperium (the period following childbirth). These are code numbers 640–676 of the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM).[3]

Normal delivery.—Delivery without abnormality or complication of pregnancy, childbirth, or the puerperium, and with spontaneous cephalic delivery (that is, presentation of the child headfirst and delivery of the child without external aid). No mention of fetal manipulation or instrumentation is made. ICD-9-CM code 650 is assigned.

Complicated delivery.—All deliveries not considerd normal, including deliveries of multiple gestation. ICD-9-CM code numbers 640–648 and 651–676 are assigned.

First-listed diagnosis.—The coded diagnosis identified as the principal diagnosis or listed first on the face sheet of the medical record. The number of first-listed diagnoses is equivalent to the number of discharges.

All-listed diagnoses.—The estimated number of discharge (or final) diagnoses, up to a maximum of seven, that are listed on the face sheet of the medical record for inpatients discharged from non-Federal short-stay hospitals during the year.

Procedure.—One or more surgical or nonsurgical operations, procedures, or special treatments assigned by the physician to the medical record of patients discharged from the inpatient service of short-stay hospitals. In the NHDS all terms listed on the face sheet (summary sheet) of the medical record under the captions "operation," "operative procedures," "operations and/or special treatments," and the like are transcribed in the order listed. A maximum of four procedures are coded.

Average length of stay.—The total number of patient days accumulated at time of discharge by patients discharged during the year divided by the number of patients discharged.

Race.—A term used to classify patients into one of two groups: "white" and "all other." The "all other" classification includes all categories other than white. Mexican and Puerto Rican patients are included in the white category unless specifically identified as "all other."

Type of ownership of hospital.—The type of organization that controls and operates the hospital. Hospitals are grouped as follows:

- *Voluntary nonprofit.*—Hospitals operated by a church or another nonprofit organization.
- *Government.*—Hospitals operated by State or local governments.
- *Proprietary.*—Hospitals operated by individuals, partnerships, or corporations for profit.

NOTE: A list of references follows the text.

Geographic region.—One of the four geographic regions of the United States corresponding to those used by the U.S. Bureau of the Census:

Region	*States included*
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
North Central	Michigan, Ohio, Illinois, Indiana, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
South	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
West	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska

Symbols

- - -	Data not available
. . .	Category not applicable
-	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standards of reliability or precision (more than 30-percent relative standard error)
#	Figure suppressed to comply with confidentiality requirements

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